Remarks:

Reconsideration of the application is requested.

Claims 1, 3, and 7-61 remain in the application. Claims 1 and 34-35 have been amended. Claims 2 and 4-6 have been cancelled.

Regarding item 1 on page 2 of the above-identified Office action, it is noted that a claim for priority and a certified copy of the German priority application DE 101 00 867.8 were mailed to the Office on March 1, 2002 and received on March 12, 2002 (see the enclosed copy of the return receipt postcard), along with the executed declaration.

In item 3 on page 2 of the above-identified Office action, the specification has been objected to because the item in the figure denoted "3" does not have a corresponding description in the specification.

It is noted that the item in the figure denoted "3" refers to a compression shock (see page 10, line 4 of the specification).

In item 5 on page 3 of the above-identified Office action, claims 1-61 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that as to Claims 1-33 (incorrectly stated as 1-34) it is unclear where the aerosol generating step is since the process starts with an aerosol.

It is noted that the definition of aerosol is a suspension of fine solid or liquid particles in gas (see Merriam-Webster dictionary), not a gas with any particles therein. The process according to the invention of the instant application begins with providing the gas with input particles and then these particles are broken into fine output articles through the compression shock, thus generating aerosol.

The Examiner has also stated that in claim 7 it is unclear what is the scope of "feeding" the input articles into the gas at rest since this step would define aerosol generating which is not further set forth. It is clearly shown in the figure that input articles are fed into the gas from the supply device (6).

The Examiner has further stated that in claim 26 it is unclear whether Applicants intend just the carrier or the carrier and the agent. Appropriate correction has been made.

The Examiner has additionally stated that in claim 29 the term "solvent" is indefinite because it is unclear what the solvent solvates.

It is noted that a solvent is a liquid substance capable of dissolving or dispersing one or more other substances. Any solvent can be used for the process according to the invention of the instant application. It is not necessary to specify what the solvent dissolves.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for cosmetic and/or clarificatory reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claims for any reason related to the statutory requirements for a patent.

In item 7 on pages 3-5 of the above-mentioned Office action, claims 1-4, 7, 9-11, 13-24, 26-29, 34-36, 39, 41-44 and 46-61 have been rejected as being anticipated by Wong et al. (US Pat. No. 4,972,830) under 35 U.S.C. § 102(b). In item 8 on pages 5-6 of the above-mentioned Office action, claims 1, 6, 8-11, 13-24, 34, 39-40, 43-44 and 46-61 have been rejected as

being anticipated by Boiarski et al. (US Pat. No. 4,268,460) under 35 U.S.C. § 102(b). In item 9 on page 6 of the above-mentioned Office action, claims 1-4, 9, 13, 17, 24, 31-32, 34-36, 50, 54 and 61 have been rejected as being anticipated by Wagner (US Pat. No. 4,294,208) under 35 U.S.C. § 102(b).

The rejections have been noted and claims 1 and 34 have been amended in an effort to even more clearly define the invention of the instant application. Support for the changes is found in original claims 2 and 6.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

> providing a gas supplied with input particles;
>
> providing an enclosure having a cross-section widening in a direction of flow in order to achieve a supersonic velocity;
>
> guiding the gas with the input particles and causing the gas to flow at the supersonic velocity to cause a compression shock to occur in the gas;
>
> guiding the gas to cause the compression shock to occur, as seen in the direction of flow, behind an end of the enclosure and outside the enclosure; and
>
> breaking the input particles into output particles being smaller than the input particles by passing the input particles through the compression shock, generating the aerosol. (Emphasis added.)

Claim 34 calls for, inter alia:

> a gas guiding device configured to guide a gas having input particles suspended therein and flowing at a supersonic velocity, said gas guiding device having an enclosure with a cross-section widening in a direction of flow for achieving the supersonic velocity; and
>
> said gas guiding device being configured to generate a compression shock in the gas causing the input particles, upon crossing the compression shock, to be broken down into output particles smaller than the input particles, the compression shock occurring, as seen in the direction of flow, behind an end of said enclosure and outside of the enclosure. (Emphasis added.)

None of the cited references discloses an enclosure according to the invention of the instant application with a cross-section widening in a direction of flow, where gas is guided such that a compression shock arises behind the end in flow direction of the widening enclosure and thus outside of any enclosure. The method and device of the invention of the instant application have the advantage that an interference of the compression shock caused by walls of the enclosure is prevented. The walls influence the physical parameters in the compression shock, such as the pressure and thus lead to difference particle sizes, depending on whether an output particle runs through a compression shock in an area which is close to the wall or away from the wall. A compression shock which is not disturbed by outer walls, in contrast, enables an improved production of an aerosol with a more defined, reproducible particle size.

A further advantage of the invention of the instant application is that the output particles can also be fed outside of the enclosure, after the end of the widening part of the enclosure. Output particles within the enclosure disturb the flow equations on which the calculation of the measurements of the enclosure are based and thus complicate an adaptation of the enclosure to a predetermined particle size.

Wong et al. describe the generation of an aerosol, whereby a gas, which is mixed with liquid particles and which flows at supersonic speed, hits a bluff body which causes compression shocks and finally a plurality of vortices in a chamber. The gas is then further guided within the enclosure such that the vortices are finally combined to a single whirl. The liquid particles are crushed by the process of the formation of vortices (see column 8, lines 10-52). Besides the fact that in Wong et al. the compression shocks therein, in contrast to the invention of the instant application, only arise when the gases hit a bluff body, a further difference is that the compression shocks arise within the enclosure. Compression shocks outside of the enclosure would be contrary to the teaching of Wong et al. because the gas after the formation of the first vortex by the compression shocks according to the described method for crushing the particles must be further fed through the walls in order to finally generate a large vortex.

It is asserted in Boiarski et al. that a gas, which is mixed with liquid particles, flows at supersonic speed after it has flown from a chamber through an opening 70 and that compression shocks arise. It is commonly known that supersonic speed can only arise when a constantly widening section follows the narrowest section. For physical reasons it is thus impossible for supersonic speed to arise downstream of the described, unwidened opening 70. Should the Examiner request, Applicants can provide corresponding literature to support the above conclusion. The opening 70 of the chamber 66 in Boiarski et al. (see Fig. 3) does not have a widening section in flow direction, so that a supersonic flow and thus compression shocks outside of the enclosure cannot take place. Boiarski et al. do not contain any hint toward a Laval-nozzle type opening.

Wagner describes a pre-combustion chamber of a diesel motor where gas flows in and out of the cylinder area of the motor into the combustion chamber. The gas runs through a Laval nozzle type narrowing/expansion so that the gas flows into the chamber with supersonic speed and compression shocks are generated. In the areas where the compression shocks arise, particles of a fuel are injected which are crushed in the compression shock. Contrary to the invention of the instant application, compression shocks arise therein within an enclosure. Compression shocks outside of an enclosure do not

make any sense in a combustion motor, because the crushed particle are required for the combustion within the pre-combustion chamber. Therefore, a configuration of the compression shocks according to the invention of the instant application in free space is not suggested by Wagner.

Clearly, none of the references Wong et al., Boiarski et al. and Wagner shows "guiding the gas to cause the compression shock to occur, as seen in the direction of flow, behind an end of the enclosure and outside the enclosure", as recited in claim 1, and "said gas guiding device having an enclosure with a cross-section widening in a direction of flow for achieving the supersonic velocity, ..., the compression shock occurring, as seen in the direction of flow, behind an end of said enclosure and outside of the enclosure", as recited in claim 34 of the instant application.

Claims 1 and 34 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1 or 34, they are believed to be patentable as well.

In item 13 on page 7 of the above-mentioned Office action, claims 13-16, 18-20, 50-53 and 55-57 have been rejected as being unpatentable over Wong et al. under 35 U.S.C. § 103(a).

As discussed above, claims 1 and 34 are believed to be patentable over the art. Since claims 13-16, 18-20, 50-53 and 55-57 are ultimately dependent on claims 1 or 34, they are believed to be patentable as well.

In item 14 on pages 8-9 of the above-mentioned Office action, claims 24-30 and 33 have been rejected as being unpatentable over Wong et al. and further in view of Sallmann et al. (US Pat. No. 5,096,917) or Gleason et al. (US Pat. No. 4,552,893) under 35 U.S.C. § 103(a).

As discussed above, claim 1 is believed to be patentable over the art. Since claims 24-30 and 33 are ultimately dependent on claim 1, they are believed to be patentable as well.

In item 15 on page 9 of the above-mentioned Office action, claim 12 has been rejected as being unpatentable over Wong et al. and further in view of Sanders ("Principles of Aerosol Technology", pages 18-33) under 35 U.S.C. § 103(a).

As discussed above, claim 1 is believed to be patentable over the art. Since claim 12 is dependent on claim 1, it is believed to be patentable as well.

In item 16 on pages 9-10 of the above-mentioned Office action, claim 5 has been rejected as being unpatentable over Wagner

and further in view of Pool (US Pat. No. 2,873,756) under 35 U.S.C. § 103(a). Claim 5 has been cancelled.

In view of the foregoing, reconsideration and allowance of claims 1, 3, and 7-61 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

Petition for extension is herewith made. The extension fee for response within a period of two months pursuant to Section 1.136(a) in the amount of $205.00 for small entity in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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